or to a space within an enclosed superstructure, must have a hinged inside deadlight which is designed so that it can be secured watertight over the side scuttle.

(c) A side scuttle of a superstructure end bulkhead door, companionway door, or deckhouse door may have a portable inside deadlight which is designed so that it can be:

(1) Secured watertight over the side scuttle; and

(2) Stowed inside the superstructure, companionway, or deckhouse when not in use, in a readily accessible location on or adjacent to the door.

[CGD 73–49R, 38 FR 12290, May 10, 1973, as amended by CCGD 80–116, 46 FR 56788, Nov. 19, 1981]

§ 45.141 Manholes and flush scuttles.

Manholes and flush scuttles in position 1 or 2 or within any superstructure other than an enclosed superstructure must have permanently attached covers, unless the cover is secured by closely spaced bolts around its entire perimeter.

§ 45.143 Hull openings above freeboard deck.

Closures for openings above the freeboard deck must be as strong as the structure to which they are attached and must be weathertight.

§ 45.145 Hatchway covers.

(a) Hatchways in position 1 and 2 must have weathertight hatch covers with gaskets and clamping devices.

(b) The maximum ultimate strength of the hatchway cover material must be at least 4.25 times the maximum stress in the structure calculated with the following assumed loads:

(1) For ships 350 ft or more in length, at least 250 lb/ft^2 in position 1 and 200 lb/ft^2 in position 2.

(2) For ships less than 350 ft in length, at least AL in the following formula:

(i) Position 1:

$$AL=200+C$$

where $C=50(L-79)/271$

(ii) Position 2:

$$Al=150+C$$

(c) Hatchway covers must be so designed as to limit the deflection to not more than 0.0028 times the span under the loads described in paragraph (b) of this section and the thickness of mild steel plating forming the tops of covers must be at least 1 percent of the spacing of stiffeners or 0.24 in, whichever is greater.

§ 45.147 Hatchway coamings.

(a) Except where the Commandant determines that the safety of the vessel will not be impaired in any sea condition, each hatchway must have a coaming that is at least—

(1) 18 inches in position 1; and

(2) 12 inches in position 2.

(b) Each hatchway coaming required by this section must be made of steel or equivalent material.

(c) The height of these coamings may be reduced or omitted if the Commandant is satisfied that safety of the ship is not thereby impaired in any sea conditions.

§ 45.149 Machinery space openings.

(a) Machinery space openings in position 1 or 2 must be framed and enclosed by steel casings, and where the casings are not protected by other structures that meet the requirements of § 45.109, their strength must be approved by the Commandant or the assigning authority.

(b) Access openings in casings required by paragraph (a) of this section must have doors complying with the requirements of § 45.113. Other openings in such casings shall be fitted with equivalent covers, permanently attached.

(c) Except as provided in paragraph (d) of this section, coamings of any funnel or machinery space ventilator that must be kept open for the essential operations of the ship must—

(1) In position 1, extend at least 12.5 ft above the deck; and

(2) In position 2, extend at least 6 ft above the deck.

(d) The Commandant may approve a lesser height for protected coamings.

(e) Coamings of any fiddley or skylight over a machinery space opening in the freeboard or superstructure deck or the top of a deckhouse on the freeboard deck, must have covers of

steel permanently attached and capable of being secured weathertight.

§ 45.151 Other openings.

Each opening other than hatchways, machinery space openings, manholes, or flush scuttles—

(a) In freeboard decks, must be protected by an enclosed superstructure or by a deckhouse or companionway that is equal in strength and weathertightness to an enclosed superstructure; or

(b) In exposed superstructure decks or in the top of a deckhouse on freeboard decks that gives access to a space below the freeboard deck or a space within an enclosed superstructure, must be protected by a deckhouse or companionway.

§ 45.153 Through-hull piping: General.

(a) All through-hull pipes required by this subpart must be made of steel or material equivalent to the hull in strength and fatigue resistance.

(b) All valves used as shell fittings and all shell fittings on which such valves are mounted must be made of steel, or bronze or other ductile material approved by the Commandant.

§ 45.155 Inlets and discharge piping: Valves.

(a) Except as provided in paragraphs (d) and (e) of this section each pipe that discharges overboard through the hull of the ship must have—

(1) An automatic nonreturn valve with a positive means for closing; or

(2) Two automatic nonreturn valves with the inboard valve accessible for examination in service.

(b) The means for operating a valve described by paragraph (a)(1) of this section must be readily accessible and have indicators that show when the valve is not closed.

(c) If the pipe discharges from a space that is not manned or does not have continuous bilge water monitoring, a valve described in paragraph (a)(1) of this section must be operable above the freeboard deck.

(d) Each pipe that discharges from a space within an enclosed superstructure or deckhouse may have at least one accessible automatic nonreturn valve if the space is regularly visited by the crew.

(e) Through-hull piping systems in machinery spaces may have valves with positive means for closing at the shell if the controls are readily accessible and have indicators showing when the valves are not closed (nonreturn valves are not required).

§ 45.157 Scuppers and gravity drains.

Scuppers and gravity deck drains from spaces above the freeboard deck that penetrate the shell below a line 24″ or .05B above the summer loadline, whichever is greater, must have an automatic nonreturn valve. This valve may be omitted if the piping is of thickness not less than extra heavy pipe.

§ 45.159 Special conditions of assignment for type A vessels.

The lower freeboards allowed for type A vessels allow water on deck for greater percentages of time. Therefore the following additional requirements must be met to qualify for type A freeboards:

(a) Machinery casings must be protected by an enclosed superstructure or deckhouse unless intact bulkheads are used on all sides on the freeboard deck.

(b) Exposed machinery casings may be fitted with weathertight doors providing they lead to a space or passageway as strong as an enclosed superstructure from which a second interior weathertight door is provided for access to the engine room.

(c) Hatchways on the exposed freeboard or forecastle decks must be provided with watertight covers of steel.

(d) Unless a separate fore and aft access is provided below the freeboard deck, a permanent fore and aft gangway must be fitted at the superstructure deck level between poop and all other deckhouses used in the essential operation of the vessel.

(e) Type ''A'' vessels must be fitted with open rails for at least half the length of the exposed parts of the weather deck. Where superstructures are connected by trunks, open rails must be fitted for the whole length of the exposed parts of the freeboard deck.